



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

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Redacted Copy

February 5, 1971

Honorable Glenn T. Seaborg, Chairman
United States Atomic Energy Commission
Washington, D.C.

Dear Glenn:

The Panel you appointed by your letter of November 25, 1970, to consider classification guidance for information concerning the application of lasers in weapons and CTR met on 4 and 5 February, 1971. The Panel members attending that meeting were:

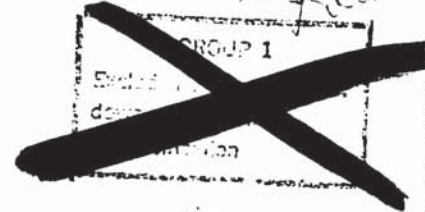
- Dr. Frederick Seitz, Rockefeller University, Chairman
- Dr. Jack W. Rosengren, LRL
- Dr. J. Carson Mark, LASL
- Dr. Gerald F. Tape, Associated Universities, Inc.
- Dr. Marshall Rosenbluth, Princeton University
- Dr. Robert L. Sproull, University of Rochester
- Dr. Charles H. Townes, University of California at Berkeley

The present letter is an interim response to your letter and reflects the views of the Panel at this time.

It is the Panel's view that the AEC requirements on lasers and their use can be best served by classification restrictions other than on the laser characteristics. In addition, DoD classifications are (and will probably continue to be) sufficiently restrictive to serve the total national interest, while not being so restrictive as to interfere with CTR developments. Therefore, we recommend that the AEC specify no classification restrictions on lasers themselves. The present classification rules (Classification Bulletin WND-36) do unnecessarily restrict important independent work using laser-initiated energy conversion systems. The AEC objective should be to permit the pursuit of theoretical and experimental work which, among other applications, would contribute to CTR development, while at the same time reasonably separating out directions which lead to weapons developments.

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Honorable Glenn T. Seaborg

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February 5, 1971

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Therefore, we recommend that all work on laser-initiated nuclear energy release systems that are capable of producing energy releases of 10^7 joules or less from a single pellet of anequimolar DT mixture be unclassified. This restriction equates to a maximum energy release of five pounds H.E. equivalent, a level below which significant independent work can be done. Such an energy restriction, if adopted, could be made public and would be readily understandable as a reasonable demarcation between CTR and weapons applications.

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We recognize that under these guidelines some technology and calculations similar to, but not directly scalable to, nuclear weapons designs would become declassified. We believe that the importance and world-wide interest in CTR make such disclosures inevitable and justify these risks.

The above two recommendations are in response to Questions 1-4 in your letter of 25 November, 1970. As to the fifth question in that letter, we see no need to maintain a specific restriction on time shaping. The limitation on pellet energy outputs should be the overriding control and would apply with or without pulse shaping.

We should appreciate a reaction by the Commission to the preliminary views, which are expressed in the above paragraphs. We should like to propose that the Panel have a second meeting (in approximately two months) with the Commission and others as appropriate to discuss the reaction by the Commission, its staff, and its laboratories. At the end of that meeting, we expect to submit a final report.

Sincerely yours,

Frederick Seitz
Frederick Seitz *by [signature]*

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UNITED STATES
ATOMIC ENERGY COMMISSION DP-32 PR39000039
WASHINGTON, D.C. 20545

February 5, 1971

Honorable Glenn T. Seaborg, Chairman
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Washington, D.C.

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DOE Honorable Glenn T. Seaborg

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February 5, 1971

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Sincerely yours,

NOTE: SEE ATTACHED SHEET FOR
DISTRIBUTION

Frederick Seitz
Frederick Seitz

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Advanced Research Projects Agency
1400 Wilson Boulevard
Arlington, Virginia 22209 Phone: 1157052

Drs. Gould and Hirsch, AEC, Division of Research

Permanent File
Revised Agenda

MEETING OF THE LASER CLASSIFICATION PANEL
February 4-5, 1971
Room 1167, H St. Office
Atomic Energy Commission, Washington, D. C.

AGENDA

February 4, 1971

9:00-9:30 a.m.	Meeting with the Commission
9:30-10:00 a.m.	Dr. Edward Teller University of California
10:00-10:30 a.m.	Dr. Eugene D. Reed Bell Laboratories
10:30-11:00 a.m.	Dr. Keith A. Boyer Los Alamos Scientific Laboratory
11:00-11:30 a.m.	Dr. Ray Kidder Lawrence Radiation Laboratory
11:30-12:00	Dr. J. A. Nuckolls Lawrence Radiation Laboratory
12:00-12:30 p.m.	Dr. S. Buchsbaum Sandia Corporation, Albuquerque
12:30-2:00 p.m.	Lunch
2:00-3:00 p.m.	Representatives of the CIA
3:00-4:00 p.m.	Dr. David Mann DOD (ARPA)
	Kent Kresa, DOD (ARPA)
	Lt. Col. John McCallum, DOD (ARPA)
4:00-4:30 p.m.	Dr. Moshe Lubin University of Rochester
4:30-5:00 p.m.	Drs. Roy Gould and Robert Hirsch Division of Research, AEC

February 5, 1971

Entire day set aside for Panel discussions

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Cps. 1 and 2 of 3 cps.
Sent to J. Rullin,
Office of the Chairman,
on 2/3/71 (w/c receipt)
These two cps were
undocumented.

DP-3 2 AR 89000037
4 pages
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FOR CHAIRMAN SEABORG FOR THE OPENING OF THE MEETING OF THE LASER
CLASSIFICATION PANEL

I would like to open this meeting by expressing my thanks and those of
my fellow Commissioners to all of the members of the Panel for having
consented to take on the difficult task of helping us steer the proper
course in the classification of information concerning lasers and laser
applications.

As you know from my letter to you of November 25, we are all very much
concerned about the need for attaining at the same time two seemingly
contradictory goals. One the assurance that information which would
materially help another nation to design and build weapons, would not
become available to them and the other is the assurance in equal degree,
that private researchers, industry and universities will be able to have,
if this is at all possible, the kinds and quantities of information they
would need to carry out research work in the development of lasers and in
the applications of lasers in the building of controlled thermonuclear
reactors.

The classification rules which you have seen and which are presently in
use in the AEC, represent the best dividing line between the classified
and unclassified work that we have so far been able to find.

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The Commission tends to believe that this information should continue to be classified, but we also feel that our rules should provide university and other private researchers with the maximum possible freedom within the limits of national security. It is this desire on our part that has led to our decision to review the current guide so as to see whether, within the limitations I have just mentioned, our laser classification rules can be modified.

An added complication to this problem (which is already pretty complicated) is the fact that not only are increasing numbers of U.S. scientists interested in this field but increasing numbers in other countries are also becoming interested in laser work. The briefings you will receive today will include whatever information we or the CIA have been able to gather on the subject of foreign interest and work in this field. They will also cover knowledge of the work which is being done within the Department of Defense, our CTR Program, industry and the universities. You may of course wish to have a subsequent meeting or meetings with additional briefings, but it is our hope that at a reasonable early date

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- 3 -

this distinguished panel will be in a position to provide the Commission with answers to the five basic questions which we have asked the Panel to consider. These questions, as you will recall were contained in my November 25 letter to you. They are as follows: (To be read if desired)

1. Is it reasonable to classify as Secret Defense Information information on lasers which are capable of power outputs of 10^5 joules or more in ten nanoseconds or less? Are such limits practical? Does the Panel feel that some basis other than power and time should be adopted as defining the classified areas? If not, are there some other dividing lines of power and time which the Panel feels would be more appropriate?
2. Do the current classification rules concerning experiments and experimental plans utilizing laser initiated external inertial confinement and compression provide independent researchers with all of the freedom practicable within the national security?
3. Can the classification guidelines concerning theoretical calculations and experiments aimed at achieving pure fusion nuclear explosions, including microexplosion of fuel pellets as well as information confirming the feasibility of pure fusion devices be modified so as to broaden the scope of unclassified work in that area?

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- 4 -

4. Can any theoretical calculations and experiments involving the use of laser radiation for the following purposes be declassified: (1) symmetrically implode materials to a ten-fold or greater compression, (2) obtain a density in hydrogen and its isotopes as great or greater than one gram atom per cubic centimeter, (3) produce a pulse of thermonuclear yield having a peak specific power output density anywhere greater than 10^{15} watts per cubic centimeter, or (4) produce a pulse of TN yield having a specific power output density anywhere greater than 10^{15} watts per cubic centimeter if DT were substituted for relatively inert isotopes in experiments in which such power output densities were not achieved.
5. Can there be any relaxation of the current classification now in effect on information concerning the time shaping of the laser output?

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